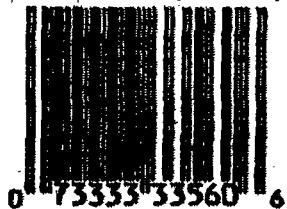
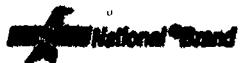


M/710

83



College Ruled White Paper Single Subject Notebook

80 Sheets/9½ x 6"

Reorder # 33-580

Made In USA

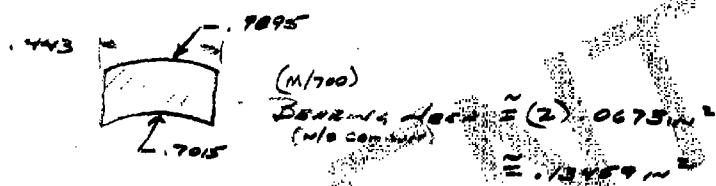

**AVERY
DENNISON**
Office Products
Chicopee, MA 01022

ET35731

9/67

M/700 - Receiver O.D. - 1.355 / 1.360

- Receiver/Bore Nose Cup - .700/.725
- Ejection Port Cover - 3.22 / 3.25
- Bore Nose Cup O.D. - .9895
- Receiver I.D. - .7015
- Bore Cup Width - .443



83

Bore Bore, O.D. - .695 / .698

Bore Spherical O.D. - .6955

M/710 - DEESEN B CUP - CUP AREA = (3) 0.48022 in^2
(w/o 45° CUP SUPPORT) $= 1.29069 \text{ in}^2$

M/700 Magnum Bore Area - Max O.D. - 1.246 / 1.257

8/27 M/710

BARREL - Barrel Hub Dia (Outer) = $1.230 \pm .0015$

- Bolt hub Clearance Dia = $.925 \pm .005$

- Bolt Body Clearance Dia = $.708 \pm .003$

- Bolt width = (2 X Bolt Engagement) / (Bolt Hub Angle)
- $(3)(.925 - .708)/2$ (deg 45°)

$$= .325$$

$$.300 \pm .005$$

- Bolt hub Clearance width = $.325 \pm .005$

- Bolt Shroud C'Bore Depth = $.210 \pm .005$

- Barrel Hub Length = $.300 + .325 + .210 + 2(\text{Clearance})$
 $= 1.800 \pm .005$ (Received Overall)

- Bolt Shroud C' bore Dia = $.708 \pm .007$

- Bolt hub Width Clearance = $.400 \pm .005$

- Take Down Threads = 1/4-28

BOLT - Bolt Shroud Dia = $.695 \pm .002$

- (Note - DERRKS C' width in BOL/BOLT .400)

- Bolt Body Dia = $.899 \pm .003$.001 Min Clearance
.010 Max Clearance

RECEIVER - Force Fit Threaded,

(See Mach. Handbook Pg 647/657)

- FN₃ - Force Fit Class 3

↳ HOLE $1.230 \pm .001$

↳ SHARP $1.230 \pm .002$

i.e. RECOMMENDED TOLERANCE = $.001/.0026$

↳ Assume $\pm .0005$ on Barrel Hub

1.2295 Min Barrel

$-.001$ Min Draft

1.2295 Max Rec. Hole

$-.0015$ Max Tol.

1.229 Nom. Rec. C'Bore

83

RECEIVER CONT'D

- Bore Clearance Dia - .906 ± .003 → Non Inspected
- Web Thickness Max Opening to Bore C Edge - .100
- Max Web Dimensions Length = 3.75 ± .010
- Bore C Bore Depth 1.800 ± .005
- Max Web Width at Rear = ~~.800 ± .010~~
- Max Web Width at Front = ~~.800 ± .010~~
- 7/3/90 - Receiver I.D (TUBE) - $\frac{1.046 \pm .003}{\text{INS.}}$
- O.D - 1.400 ± .005
- Extr. Part Width = .590 ± .005
- Extr Part Gage = .910 Bore Width
- Max Web Width .810 ± .005
- Face Contact Width = .310 ± .005
- Face Contact Seat Location = 1.100 ± .005
- Receiver O.D. - 1.400 ± .005
- Bore Max Eccentric Depth = .570 ± .010
- Fer Face to Fer Take Down - .8375
- Bore Stop Clean Hole D.I. - .279 ± .002
- B.S. Face .67 ± .005
- B.S. Hole Pos. .598 ± .005

M/7600 Maximum Bore Clearance Length = 3.552.

83

Bear Cavity - Photo Mar'8 - 8640

- Bear Sheath Length = .215 ± .005 =
- Bear Lure Width = .303 ± .005
- Bolts Surface Dia = .695 ± .002
- Bear Body Dia = .899 ± .003 → .001 MIN CLEAR w/ Reg.
.010 MAX CLEAR
- Bear Cut Width = .370 ± .005

* 9/2/88 - Small Bear Body ab. .695 ± .002

83

ET35735

Receiving Screen/Inset

- O.D. - $1.045 \pm .002$ - $(1.043 \pm .003 / 1.046 \pm .001)$
- I.D. - $.915 \pm .005$
- Bear Lng. Worn (Cesec) - $.380 \pm .003$
- Bear Body Clear. Dia - $.701 \pm .002$
- Inside Receiver Length - $(5.100 \pm .050) \cdot 5.050 \pm .005$
- Port Worn - $.600 \pm .005$
- Main Wall Worn - $.550 \pm .005$
- Main Wall Position From Front = $.040$
- Outer Port From Front = $.050$
- Outer Port Length = $.380$
- Main Wall Length = $.360$
- Scrap Padding G. of Port Room
- $x = .850$
- $y = .621$
- Nominal Wall = $.065"$
- Side Port River Holes = $.097 \pm .0015$
- B.S. Ocean Holes - $.290 \pm .005$

83

Bolt Body

- Body Dia - .695 ±.002
 - LENGTH - 5.065 ±.005
 - I.D. - .490 ±.003
 - Bolt Pos, Recess I.D. - .600 ±.005
 - Bolt Head Pin Hole Dia - .250 ±.002
 - Hole Pos. From Front Face - .215
 - Bolt Pos, Pin Depth - .450 ±.005
 - Bolt Head Pin Hole - .250 ±.002
- 1/13/98 - Bolt Pos, L.H. Gage. - .250 ±.002

83

Bolt Head -

- Photo Ref. BG40
- Body Serration Dia - .495 ±.002
 - Firing Pin Hole Dia - .073 ±.002
 - Rock F.P. Hole Dia - .150 ±.002

ET35737

Bore Poles

- SLEEVE O.D. - .490 ± .003
- SLEEVE LENGTH (Borehole SHORING) - .465 ± .005
- LUG O.D. - .590 ± .003
- LUG WIDTH - .120 ± .003
- BODY O.D. - 1.395 ± .005
- BORE LUG W.D.P.W. .300 ± .005
- LUG SHEAR AREA LENGTH - .180" *BASED ON .094" LUGS*
- LUG SURFACE AREA, w/ GROOVE - / BORE DIA. - .006096 in² 83
- .125R Q .165 Lugs
- ↳ AEC LENGTH - .229457 in
- ↳ SURFACE AREA - .0067 in²

Bore Shovel

- SHAFT DIAMETER - .274 ± .002
- PRODUCER WIDTH - .400 ± .005
- SHAFT TO PRODUCER EDGE - .575
- SHAFT LENGTH - .295
-

FIRING PIN

SACO LONG ACTION - FIRING PIN MASS = .09416z.

- TIP DIA = .0685

SAUVE LONG ACTION - FIRING PIN MASS = .08716z

- TIP DIA = .0671

M/700 LONG ACTION - FIRING PIN MASS = .141916z.

83

- Bolt Head to Bolt Neck Length = 4.065

- Bolt Head Length (Rear to BF) = 1.126

- Bolt Neck to Spur Length = 1.028

TIP (SHEAR)

- Tip Dia = .067 ± .001

- SHARP DIA = .143 ± .002

- Head Dia = .405 ± .005

- Head Width = .400

Alum Tor = .059416.

- STROKE = .235

Steel Tor = .11075916.

- THREADED = #12-28 UNF ..

- MASS = .014916z.

HEAD (1010) - Mass = .015784

SHAFT (1010) - O.D. = .295 ± .002

- Tip Thread = #12-28 UNF ..

- LENGTH (BEFORE TURN) ~~.4590~~ ~~.4540~~ ~~.....~~

- Tip Thread Length = .150 ± .005

- Head Thread Length = .225 ± .005

- Head Thread = #12-28

- Mass = (Alum) .02876

	<u>DESIGN</u>	<u>D.W.</u>	<u>Reg. No.</u>
* - Barrel	/	D 5806	77881
* - Receiver	/	E 5826	77881
- Receiver Insert	/		
* - Bolt Head	/	D 5827	77881
* - Bolt Body	/	D 5830	77881
- Bolt Assy Pin	/	B 5842	77883
- Extractor	/		
- Ejector			
- Ejector SPRING			
- Extractor Pin			
* - Bolt Handle	/	C 5885	77881
- Bolt Handle Pin	/	A 5841	77883
- Bolt Pin	/	D 5845 5992	77882 80180
* - F.P. Head	/	C 5836	77881
* - F.P.	/	C 5857	77881
* - F.P. Tip	/	C 5888	77881
- F.P. SPRING	/		78912
- Right Side Part	/	C 5844	77883
- Side Part Pin (Hous. Assy) AND 5840			77883
- SAFETY			
- SAFETY DETENT SPRING			
- SAFETY BUTTON			
- TAKE DOWN SCREWS ^{#8} 1/2 (2)			
- SIGHT ASSY'S			
- MAGAZINE BOX	/		78708
- CATCH	/		
- TRIGGER GUARD	/		
- Bolt Stop			
- STOCK	/		79139

83

Side Pierce River

- Body Dia = .101 ± .0015
- Head Dia = .182 ± .005
- Snout Length = .205 ± .005
- Head Width = .045 "

Bolt Monroe Pin

- OD = .255 ± .002
- LENGTH = .828 ± .005

83

Bolt Assy Pin

- OD = .247 ± .0005
- LENGTH = .290
- Hole Dia = .045 ± .001

Firing Pin Spacing

- Bear Body I.D. = .499 ± .003 = .495 mm
- Firing Pin O.D. = .275 ± .002 = .277 mm
- Fired Length = 3.665
- Cocked Length = 3.480
- Stroke = .285

$$\text{Ex. 1} - F_1 = 19.25 \quad x_2 = 6.015 - 3.665 = 2.35$$

$$F_2 = 17.50 \quad x_1 = 6.015 - 3.480 = 2.535$$

$$K = 7.4468 \text{ lb/in} \quad M = .111$$

$$\begin{aligned} \text{Energy} &= \frac{1}{2} K (x_1^2 + x_2^2) \\ &= \frac{1}{2} (7.4468)(2.535^2 + (2.35)^2) \\ &= 1.318 \text{ in lbs.} \end{aligned}$$

$$\boxed{E = 68.08 \text{ in Ohs}}$$

$$\begin{aligned} T &= \frac{\cos^{-1}\left(\frac{x_2}{x_1}\right)}{\sqrt{K M (2)}} \sqrt{m} \\ &= \frac{\cos^{-1}\left(\frac{2.35}{2.535}\right)}{9.453} \end{aligned}$$

$$\boxed{T = .00267 \text{ sec}}$$

83

Incidents

- Front to Front Take Down - 10.8375
- Dist. Between Tack Down - 1.700
- Front to Rec. Face - 11.700
- Rec. Length 6.400 ft. Cams
- Rec to Blk Straight - 1.1742
- Rec to Blk. Take Down Screen - 6.960
- Rec T.D. Post Dist - .445
- Rec T.D. Post Depth - 1.107
- Rec of Rec to Spout of Back - 1.315
- Rec Tank Clear Post - .283
- Fire Control Slot Width - .840
- F.C. Slot to Rec T.D. CL - .550
- F.C. Slot (Front) to Rec T.D. CL - 2.520
- F.C. Slot Depth from Blk CL - 2.055
- Rec of Rec Slot Post of F.C. - 1.215
- Latch Width - .495
- Latch Clear from to Back - .357
- Recip. Beveler width - .205
- R.B. Fire. Post to T.D. Front - 3075
- R.B. Slot width - .700

83

SACO Flaminio Pin Spanish:

Compressor - Free Length to Coated Pos = 1.005

Free Length = 2.790

Stroke = .210 "

$$Pr^1 = x = (DFFL) = .282 .208$$

$$L_1 = 27.025 \text{ lbs/in}$$

$$Pr^2 = x = (DFFL) = .716$$

$$L_2 = 15.46$$

$$Pr^3 = x = (DFFL) = .849$$

$$L_3 = 12.96$$

$$K_{12} = \frac{(L_2 - L_1)}{(L_2 + L_1)} = \frac{9.46 \text{ lbs}}{48.2 \text{ in}} = 21.816 \text{ lbs/in}$$

$$K_{23} = 23.90 \text{ lbs/in}$$

$$K_{13} = \frac{11.96}{.566} = 21.116 \text{ lbs/in}$$

Assume $K = 21.416 \text{ lbs/in}$

$$\therefore L_C = \text{Loop Length} = 22.791$$

83

ET35744

10/16

Design Review

- Trunnion

- Base

.025 MAX Rad. (Gauge $\pm .0005$)

.100 R Part 3

- Base Flange

- Lugs

- Threaded Union ?

-

- Base Body

- Low Clearance $\frac{1}{16}$ "?

-

- Base Head

- Extrusion Cut - .005" off of face

Loc. Issues

- No Cores, - No Ribs.

83

ET35745

Part Prototype Items For Casting Sample

- Receiver Tracer ✓
- Box Bottom ✓
- Follower ✓
- Latch ✓
- Trigger Guard ✓

83

710. REC-TRACER - SOLID

710. BOX-BOTTOM

710. FOLLOWER

710. LATCH

710. TRIGGER GUARD

Face To Parameters For Build

ET35746

1/16/98

Received Insert

Total Cool EFT.

$$\text{Start Date} - 3/16 \rightarrow 4/90/16$$

Volume ≈ 1.8

Cavitation - 2

20.7 sec Total Cycle

Labor Rate $\$37.79/\text{hr}$

$\Rightarrow \$40/\text{PART}$

83

1/16/98 Design Review - Coolant Rates $\approx 100 \text{ g/sec}$

Rec Inv - ~~13.5C~~ $\approx .40$ (Erosion EFT) Mar 2 '97

- Material (Cooper Uerpm)

- Coolant Grade - TRT

- Cycle Time 40 sec / 1 Cavity

- 5th Tool Part Cycle Time

* - Mold Flow Analysis

\Rightarrow Cycle Time

\Rightarrow Material

\Rightarrow Cavitation

* - Positional Tolerance - Clearance Thrst - .003

Op 30 - Portionally Milled

- NEED THREADED INSERT

* - Screw Pockets Open Face

ET35747

Bear Head

- OP BD ?
- Mill Loks - No Cost due to Op Combinations
- Common to M/700 Bear Head.
- Cam Cut on Barore vs Bear Head

Bear Plug

- Low Strength
- Penetrating Cost shared on cycle
cycle vs rec. ins.

83

Screw Axle

- Rebar Pin Outsourced - $\approx \$1.00$
- Same Cut as 700 ADC
L Bar Sav w/ Burr Peared ($\# 2+$)

(6.12 + 1.6) 700 ADC

Nice Comp. - Screw Maritime Price our for quote.

Firm Pin - More Thread Clearance for Roll Thread

Bear Handle - \$4.00

Barore Barore

- Seamless Thread

Barore - Low Cam 3

- Turn vs. Roll (Same Cost).
- Add Setup Costs

ET35748

Firing Pin Head

- Min

Recoveries

- Outsource - Recovery + Serial #

Bolt Body

- Outsource

Bolt Assy

- OP 40 ?

- OP 60 ? - No Recovery ?

Bolt Nut

- OP 30 Removed

- OP 40 "

83

ET35749

1/12 Parts to Lamson 1000 Board
→ #88139 - \$4218.00

Bolt Body	2 PCS.	1010-1020 OR 1100 SERIES
Bolt Head	2	8640.
RECEIVER	2	1010-1020 OR 1100
Bolt Handle	2	1010-1020
F.P. TIP	2	8620
F.P. Head	2	1010-1020
F.P.	2	1010-1020
SIDE PLATE	2	1010-1020
Bolt Handle Pin	2	1010-1020
SIDE PLATE PIN	4	1010-1020
Assembly Pins	2	1010-1020

Barrel Seats 15
#88781 (1100)

Rein. Spec 155

83

Part to Lamson

#88082 - Receiver Insert - 1 pair *3550 Nor to Excess.

#88120 - Tear Bolt Pins - 2 pair *300

1/13

Bow Pier Calculations

↳ F.P. SURFACE FORCE - (Force) 19.25 lbs.

↳ L.G. SURFACE AREA = .000086 m²/Lb

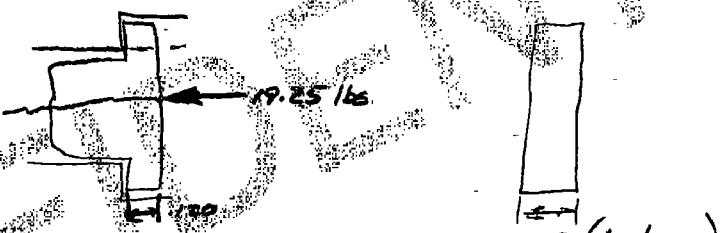
$$T_L = \frac{19.25}{.000086} = \frac{9.625}{.000086}^{1/2} = 1578.9 \text{ psi/lb}$$

$$T_L(1.125A) = \frac{9.625}{.0007} = 1432.6 \text{ psi/lb}$$

83

SHEAR

Assume Pier Cross Section



i. A = Cross sectional Area = .1809 in x .120 in

$$= .02171 \text{ in}^2 (.125) =$$

Mechs
F_y 518

$$\text{Shear Stress}_{max} = \text{Pier Area} = \frac{3(k_{max})}{2(Area)}$$

$$S_{V(max)} = 1330 \text{ psi.}$$

$$S_{V(max), 1125A} = 1048.7 \text{ psi.}$$

1/14 - SAW/Sonic/Carclo/stainless/Damny/utile H.

- Recoil Pad - ADL - OK

- Grip Cap - ADL - Recognition?

↳ Shape OK → New Tool

↳ Baroque Required - w/ Color Differential

- Sportsman Line

* → Turner Apps For Fine Artwork

↳ Grand R Logo with Beach Border

COSTA
6M Series

83

Carlo to Draw - Logo

- CROWN - RECESSED - MFG Piece

- FRONT LIGHT - ADL SIND.

① - Contour BBG - Transition - Turn/Polish 2.10

↳ Mike S to work w/ Frame

- Rear Sight - SPIS 78 - Visual Calibration?

→ Mike Springfield

→ Receiver - Transition to Bolt Plate - Finish lower -

- Sportsman 710" Rocker "Bolt Plate

- Extraction Port - OK

② - Bolt Handle - Casting ? - CNC \$30
 $\frac{700}{5} \pm .002$

- Carlo / Jay / Sonne

- Base w/ SWEEP

- Machin. Uniform w/ MPN .015"

- Scrim, Square Thread - Torx w/o Inserts

- Comprehensive Evaluation

③ - Bolt Plug - Carlo

- SAFETY BUTTON - OK.

- REARVIEW INSER - Radius CHANNELS FOR WOOD STOCK

1/14 Cont'd

- Traction Control - O.K. -
 - SIDE CONTOUR - 700
 - 700 WIDTH
 - 700 FRONT PAD.
- FINISH - Scores for part identifications
- WHEELS CHASSIS & TIREHOUSE SIMILAR TO BB.
- Stock Hatch Opening - OK
- LATCH - Close From Bottom
- Box Fit Up Good
- Box Bottom - Side Texture
 - Logo - JOHN/SAY "No"
 - Tool Case for Impact
- Stock - Rear Take Down - CHANGING
 - REINFORCED
-
- Door Step - "Lip" Required
 - PAI REQUIRED
- Door Pull - Interior Moulded Stereo Gun Piece.

83

1/15 - MANBOK ILLS FILE TO TRACTION DECISION AREA: WORK B.
FROM HAROLD BROWN.

- 1/16 - Box Rts. STD File to Graphics Pattern
- 1/17 - Box Pull 360 = (4)
Req # 88739
- 1/18 - Req # 89553 - Motor from Analyzer - \$3000
89554 - Main Box Device.
- 1/19 - Req # 89919 - Camera Reances.
- 1/20 - Req # 89998 - Stock (Cable)
- 2/1 - Req # 90683 - Rec Inv - 8500's

2/10 - Measurements

- Firing Pin Head

$$6' Bore - .0545/.058$$

$$A \text{ to Bottom (.282)} - .334/.321$$

$$(.440 \text{ width}) - .4395/.4395$$

$$(.170 \text{ width}) - .169/.1700$$

$$(.565+.005) - .649/.649$$

- Firing Pin Tip

$$\frac{.1125+.005}{(1.1255)} = 1.1335/1.137$$

83

- Firing Pin

$$(4.590) = 4.5865/4.592$$

- Side Plate OK

- Base Plate OK

- Bore Head

$$.371 \frac{1}{16} .001 - .362/.360$$

2/10 - Firing Pin Tip Portion

$$AD 1.126/1.125$$

Hanson - 2 Cores

- 30% Gross Moraine - Rockless Mor.
- * 8000/Time for Holes
- 1st Core P20, End w/ 30-40%
- Ejection Port - Standard Port?
- Length - Add .025" \rightarrow 5.075
- Box Holes - Thru R. 268 to .210
- Top Core - In Line Erroneous or P18
 - B-B- .365 vs. .268/one hole margin Ejection Port
 - Top Hole - Opposite Spec 2.0/side score

83

* To Do - Prod Fix Trunc Disc.

2/9

T/T -

P20 - Tracer lines

2/10 Generic-Hansen Comp (413) 587-0534 (285°)

- Hole Tolerance $\pm .0005$

- Straightness - Bow or Leaf

2/11 P20 - Hole Tolerance $\pm .0005$ - Received Inspect
- .0015

Temp & 92412 - Bow Heads.

2/12 - Received 2 Bow Heads

- Eliminated RIC1299, 263, 76 Hansen

2/13 910, ECN-SURF File to General Pattern

2/17 Press Fit Case.

Machinist's Handbook Pg 697

$$P = \frac{A \cdot F}{2} \quad A = \text{Surface Area} = (\pi)(1.857)(1.868)$$

$$\alpha = (.0015 \times 1.857)$$

$$F = 375 \text{ (Tensile)}$$

. P = 1.63 tons.

83

ET35756

2/17 Parts Ready For Demount.
Parts/MOK/710/ RECEIVER

Pr No.

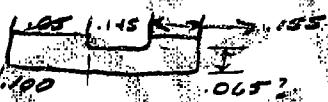
2/18 M/710 Action - 6000 Day. Friction w/o Friction.

Insure before day cycle .013, .013, .015 (Cu Cerned)

2/22 Insures same Das Cerned .013/.014

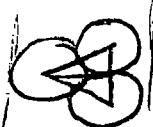
83

Electro - .188 Dia ± .002



Span Length .391 / .251

MAN BOX (.473 Non Dia)

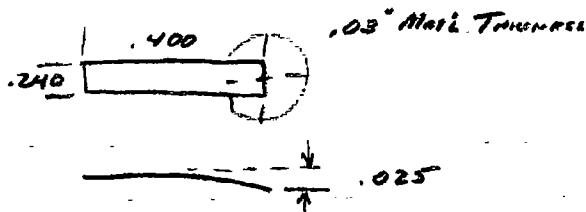


$$\cos 30^\circ = \frac{x}{.473} = .4096$$

$$\therefore .4096 + .473 = .8826 \text{ Box Width}$$

SAFETY - 30 DEG ROTATION

- Low Pos (E) - 8.0 DEG Below Horiz.



Mechanics Handbook - Pg. 528

$$P = \frac{\sum b_e^3 f}{4 L^3} = \frac{(2940^6 \times .240 \times .03)^3 (0.25)}{4 (4)^3}$$

$$P = 18.35 \text{ lbs.}$$

$$T_B = \frac{6PL}{b_e^2} = \frac{6(18.35 \times 4)}{(.240 \times .03)^2}$$

$$1095 \text{ MOPK}$$
$$T_f = 150,000$$

$$T_B = 203,889 \text{ psi}$$

83

$$\therefore @ .028 \text{ MOPK Thickness. } P = 14.95$$

$$T_B = 192,896 \text{ psi}$$

$$@ .026 \text{ MOPK Thickness. } P = 11.95$$

$$T_B = 176,775 \text{ psi}$$

$$@ 12.45 / .026 \text{ MOPK } P = 10.48$$

$$T_B = 150,382 \text{ psi}$$

$$* @ 12.45 / .026 \text{ MOPK } P = 8.39$$

$$T_B = 139,626 \text{ psi}$$

DIA

Length

Trimmer Pin Hole - .1254/.1264

Sear Pin Hole - .1255/.1265

✓ Sear + Trimmer Pin Dia - .124/.125 .300 ± .003

● INERT Hole Dia - .1235/.1205

✓ Sear Pin Hole Dia - .125~~.005~~ .126 ± .0005

✓ Safety Pin - .123/.125 .428 ± .003

✓ SAFETY Hole - .126 ± .0005

83

83

ET35760